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transmitting a synchronization pattern during said horizontal blanking period in order to synchronize said video signal for said driver ICs.

14. (Twice Amended) A video signal transmission method, for transmitting a video signal to an LCD driver which has a plurality of driver ICs that are cascade-connected, comprising the steps of:

B6

transmitting a video signal via a serial interface to said driver ICs that are cascade-connected in series by a video transmission line passing through each of the driver ICs in series; and

applying to an LCD a voltage based on said video signal that is received and that is to be processed by each of said driver ICs;

wherein said video signal is constituted by bit blocks having a plurality of attributes and wherein said driver ICs are controlled by using said bit blocks.

REMARKS

In the Office Action, the Examiner issued a final rejection of Claims 1-16, which are all of the pending claims. Claim 1 was rejected under 35 U.S.C. §102 as being fully anticipated by Japanese Patent 09-044100 (Koji), and Claims 2-16 were rejected under 35 U.S.C. §103 as being unapentable over the prior art, principally Koji, and U.S. Patents 5,751,261 (Zavracky, et al.), 5,623,579 (Babcock, et al.) and 5,801,674 (Shimizu).

More specifically, claim 2 was rejected over Koji in view of Zavracky, et al, Claims 3, 6 and 7 were rejected over Koji in view of Zavracky, et al. and Babcock, et al, and Claims 4 and 5

were rejected over Koji in view of Shimizu. Claim 8 was rejected over Koji, Zavracky, et al, Babcock, et al. and U.S. Patent 5,974,464 (Shin, et al), claim 9 was rejected over Koji, Zavracky, et al, Babcock, et al, and U.S. Patent 5,825,777 (Komarek, et al.), and claims 10-16 were rejected over Shimizu in view of Babcock, et al.

Applicants herein request that independent Claims 1, 4, 6, 10, 12 and 14 be amended to emphasize differences between the claims and the prior art.

As noted in Applicants' previous Amendment, an important feature of the present invention is that the ICs of the driver are connected in series, for example via signal lines, as illustrated in Figure 1, or by a video transmission line. Moreover, with reference to Figure 4, each of these signal lines passes through each of the ICs to connect these circuits in this way. The references of record do not disclose or suggest this way of connecting the driver ICs together.

In particular, with the arrangement shown in Koji, as explained in the Abstract thereof, the driver ICs are connected together via bypass terminals and bypass wiring. Thus, this wiring does not pass through the driver ICs in series.

Also, with the circuit shown in Shimizu, the driver ICs are connected in parallel to the signal lines, not in series.

As explained in detail in the present application, the above-discussed feature of the invention is of utility because, as a result, the number of required IC interconnects is decreased. This is advantageous because it helps manufacture the LCD driver by the chip-on-glass wiring-on-array technique.

Applicants herein ask that independent Claims 1, 4, 6, 10, 12 and 14 be amended to emphasize this aspect of the invention. In particular, Applicants request that Claims 1 and 4 be

amended to include the limitation that the driver of the LCD includes a plurality of signal lines, each of which passes through each of the driver ICs in series so that these ICs are cascade connected in series. Claims 6, 10, 12 and 14 are being amended to indicate, analogously, that the driver ICs are cascade connected in series by a video transmission line that passes through those ICs in series.

The other references of record have been reviewed, and it is believed that these other references, whether considered individually or in combination, also do not disclose or suggest the feature of passing the signal lines or the video transmission line through each of the driver ICs in series, as described in Claims 1, 4, 6, 10, 12 or 14.

Consequently, Claims 1, 4, 6, 10, 12 and 14, as amended herein, patentably distinguish over the prior art and are allowable. Claims 2 and 3 are dependent from Claim 1 and are allowable therewith, Claim 5 is dependent from Claim 4 and is allowable therewith, and Claims 7-9 are dependent from Claim 6 and are allowable therewith. Likewise, Claim 11 is dependent from Claim 10, Claim 13 is dependent from Claim 12, and claims 15 and 16 are dependent from Claim 14, and thus Claims 11, 13, 14 and 15 are also allowable.

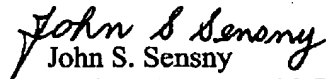
The changes to Claims 1, 4, 6, 10, 12 and 14 requested herein only emphasize differences between the claims and the prior art. These changes were not presented earlier because, although the last Office Action was made final, it was the first time Koji was applied against the claims. Accordingly, it is believed that entry of this Amendment is appropriate, and such entry is respectfully submitted.

For the reasons advanced above, the Examiner is asked to enter this Amendment and to reconsider and to withdraw the rejections of, and to allow, Claims 1-16.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "Version with Marking to Show Changes made."

Every effort has been made to place this application in condition for allowance, a notice of which is requested. Again, for the reasons set forth above, the Examiner is requested to enter this Amendment, to reconsider and to withdraw the rejections of Claims 1-16, and to allow these claims. If the Examiner believes that a telephone conference with Applicants' Attorneys would be advantageous to the disposition of this case, the Examiner is asked to telephone the undersigned.

Respectfully Submitted,


John S. Sensny
Registration No.: 28,757

Scully, Scott, Murphy & Presser
400 Garden City Plaza
Garden City, New York 11530
(516) 742-4343

JSS:gmj

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Please amend Claims 1, 4, 6, 10, 12 and 14 as set forth below.

1. (Twice Amended) A liquid crystal display device comprising:

a liquid crystal cell which forms an image display area on a substrate; and

a driver for applying a voltage to said liquid crystal cell based on an input video signal, wherein said driver includes a plurality of driver ICs that are mounted on said substrate and a plurality of signal lines, each of the signal lines passing through each of the driver ICs in series, wherein said driver ICs are cascade-connected in series using said signal lines.

4. (Twice Amended) A liquid crystal display device comprising:

a liquid crystal cell which forms an image display area on a substrate; and

a driver for distributing an input video signal to a plurality of driver ICs chain-connected in series using a plurality of signal lines, each of the signal lines passing through each of the driver ICs in series, and for applying a voltage to said liquid crystal cell by employing said driver ICs,

wherein said driver distributes said video signal to said plurality of driver ICs with providing a masking signal from an upstream driver IC to a downstream driver IC of said plurality of driver ICs, wherein said masking signal masks said video signal to be provided by said upstream driver IC.

6. (Twice Amended) A liquid crystal display device comprising:

a liquid crystal cell which forms an image display area on a substrate; and
a driver for distributing an input video signal to a plurality of driver ICs that are cascade-connected, and for applying a voltage to said liquid crystal cell by employing said driver ICs,

wherein said plurality of driver ICs of said driver are cascade-connected in series by a video transmission line provided on said substrate said video transmission line passing through each of the driver ICs in series, and are controlled by serial data that are transmitted along said video transmission line.

10. (Twice Amended) A liquid crystal controller comprising:

a receiver for receiving a video signal from a host to display an image;
a sequencer for, upon the receipt of a control signal from said host, generating header information for packet data that are to be output to an LCD driver comprising a plurality of driver ICs [which] and a video transmission line passing through each of the driver ICs in series, wherein said driver ICs are cascade-connected in series; and

output means for converting said video signal received from said receiver into a serial video signal, for adding said header information generated by said sequencer to said serial video signal, and for outputting the resultant serial video signal to the ICs of said LCD driver.

12. (Twice Amended) A video signal transmission method, for transmitting a video signal to an LCD driver which has a plurality of driver ICs and a video transmission line, comprising the steps of:

transmitting a video signal, including a horizontal blanking period, to said driver ICs in series via a serial interface wherein the video transmission line passes through each of the driver ICs in series, and the driver ICs are cascade connected in series by said video transmission line; and

transmitting a synchronization pattern during said horizontal blanking period in order to synchronize said video signal for said driver ICs.

14. (Twice Amended) A video signal transmission method, for transmitting a video signal to an LCD driver which has a plurality of driver ICs that are cascade-connected, comprising the steps of:

transmitting a video signal via a serial interface to said driver ICs that are cascade-connected in series by a video transmission line passing through each of the driver ICs in series; and

applying to an LCD a voltage based on said video signal that is received and that is to be processed by each of said driver ICs;

wherein said video signal is constituted by bit blocks having a plurality of attributes and wherein said driver ICs are controlled by using said bit blocks.